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Observation and measurements of vector-boson pair production with ATLAS

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Measurements of electroweak boson pair scattering and inclusive production at the LHC constitute a stringent test of the electroweak sector and provide model-independent means to search for new physics at the TeV scale. They allow to test the gauge structure of the Standard Model.

In this talk, we present recent results on vector-boson scattering from the ATLAS experiment using proton-proton collisions at $\sqrt{s}=13$ TeV. This includes the observation of WZ and same-sign-WW production via vector-boson scattering along with a measurement of VV production in semileptonic final states. If available, a measurement of $Z\bar{Z}$ production via vector-boson scattering will also be presented.

We also present recent results for inclusive ZZ, $Z\bar{Z}$, WW and WZ production in proton-proton collisions at $\sqrt{s}=13$ TeV, including polarisation studies in the WZ final state. The precision measurements are compared to state-of-the-art Standard Model calculations.

The data are sensitive to anomalous triple and quartic gauge couplings and are reinterpreted in terms of an effective field theory to constrain new physics beyond the Standard Model.

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Session Classification: Contributed talks